

## ABSTRACT OF THE DISCLOSURE

There is provided a simple and trouble-free method of using a supercritical fluid to clean a substrate having a fine structure. First, the substrate is placed in a processing chamber which is then tightly closed. While a pressure/temperature controlling means regulates the pressure and temperature, carbon dioxide in a gaseous state is introduced into the processing chamber from a supplying source and by adjusting the pressure and temperature, a phase change is effected to directly convert the carbon dioxide into supercritical carbon dioxide. Next, a predetermined amount of a tertiary amine compound is added from a supplying source. The supercritical carbon dioxide is supplied until a discharge valve opens and the inside of the processing chamber has been completely replaced with supercritical carbon dioxide. A cleaning process is carried out by immersing the substrate in the supercritical carbon dioxide for a predetermined time, and foreign matter adhering to the substrate is removed. After this, a rinsing process is performed on the substrate by stopping the supplying of the tertiary amine compound and supplying only the supercritical carbon dioxide so that the supercritical carbon dioxide to which the tertiary amine compound has been added is replaced with pure supercritical

carbon dioxide. Next, the supplying of the carbon dioxide is stopped and the supercritical carbon dioxide inside the processing chamber is discharged so that the temperature and pressure inside the processing chamber fall, resulting in the carbon dioxide inside the processing chamber being gasified and the substrate being supercritically dried.